AI Integration on Capacity Building among University Graduate in Tourism Industry

Abdulrahman Malik Haji[1]
School of Computing and Media Studies
The State University of Zanzibar

Kassim Omar Kassim[2]
Institute of Tourism
The State University of Zanzibar

Abstract:- The study assessed integration of AI in capacity building among university graduate in Tourism Industry. The study was started by identify the application of AI in tourism industry and evaluate graduate capability on applying those AI applications related to tourism industry. An additional objective was to identify challenges and provide solution by examine under which circumstances the adoption of AI applications could enable tourism graduates to increase their performance and competency in job market. Furthermore, the study explored the contribution of AI awareness and AI tools optimization to improve graduate employability through Conceptual frame work derived by RBV theory and Goal setting theory. The researchers utilized descriptive research methodology which employed both qualitative and quantitative method. A sample of 55 students from the institute of tourism SUZA were provided by questionnaire to answer specified questions and interview was used to get data from experts in tourism industry. Subsequently, SPSS and Thematic analysis were used to analyze the responded data. The findings noted various tourism students using AI technology in different activities such as Google translator, Google map, gps track, self-service kiosks etc. Moreover, the results of the findings explored the adequacy of existing AI infrastructure at tourism institute is not good in terms of curriculum adaptation. However, the findings further revealed that, there were few number of students who have no idea about AI which result delaying factors during job application and less awareness of online information. Moreover, the findings indicated that high percentage of graduate students agreed that AI has great impact on studies that enhance graduate employability in today world.

Keywords:- *Tourism Industry, Artificial Intelligence, Capacity Building, University Graduate, Employability.*

I. INTRODUCTION

Several countries globally have turned the tourism industry into significant economic factor which contributes to their economic growth and result to increase the country's GDP (Stroumpoulis et al, 2022) ICTs have changed tourism worldwide by contribution a huge range of new products for development making the tourism industry an economical key system globally. Technology advancement provide companies with tools to offer products and manage better services for tourists (Stroumpoulis et al, 2022) The development of social network and internet result to the increasing of digital solutions [3]. Such digital solution is digitization of tourists' services and products (Reed, M. 2018).

AI applications are being established as digital solution and experienced in travel and tourism sector (Samala et al, 2020). AI can benefit tourism industries, and advance the lives of the community. With the enhancement of people's cultural level and rich tourism experience. (Gao, M. 2023). To maintain tourism and hospitality industries skilled human resources are very important to be prepared strategically, and higher education institutions (HEIs) aim to provide employability for this vital sector (Wakelin-Theron, 2019).

According to (Shabnaz, et al 2022), graduate students could be considered as human resource who requires advanced instruction to build their capacity need to be successful in their carrier. Ensuring that graduate students are adequately prepared for these demands is critically important, influencing both performance retention and the time to achieving a degree, Underprepared graduate students who lack effective awareness of AI skills are at a divergent disadvantage, because they may not be able to compete the requirements for their tourism carrier. It is an unquestionable fact that only a few existing studies systematically explained about AI in tourism (Samala et al, 2020). Yet some aspects are not well addressed, to address these issues, both from a practical and theoretical perspective, this paper proposes a conceptual framework which analyze how awareness of AI among tourism students and the level of AI tools optimization could contribute to improve employability among university graduate. The current literature has not been thoroughly explored much in this aspects, despite the benefits that could derive by their use, to both tourism stakeholders (Stroumpoulis et al, 2022). The purpose of this paper is to identify the application of AI in tourism industry and to evaluate graduate capability on applying those AI applications related to tourism sector. An additional objective is to identify challenges and provide solution by examine under which circumstances the adoption of AI applications could enable tourism graduates to increase their performance and competitive advantage.

Section 2 highlight the concept of tourism industry, artificial intelligence, capacity building, university graduate, graduate employability, as analyzed in the previous literature and describes how AI technologies could contribute to the tourism industry. Moreover, this section describes the

Resource Based View (RBV) and Goal setting theories which were used to develop the conceptual framework of this paper. Section 3 presents methodology of the study and section 4 present findings and discussion. Finally, the conclusion which compares the results of the paper with those of the literature and summarizes the authors' contributions.

II. LITERATURE REVIEW

The advancement of ICT in tourism industry can be applied as innovation that has been altering the global tourism business quickly with the implications of the internet as argued by (Oke, E A, 2023). Nowadays, universities spend much money, time and energy to support their graduate students by providing university students with adequate resources and support, including AI components during teaching and practical session, this done purposely for creating competence. The first year of graduate study is the best time to establish contact with graduate students to help them become proficient in their capacity building activities (Rempel, 2010). Therefore, lecturers and AI experts should work in concert to support these essential skills (Conway, 2011).

➢ *Artificial Intelligence as Applied in Tourism Industry*

As defined by (Moyo, B., & Özgit, H. 2022). Artificial intelligence (AI) is generally defined as a set of machineries that can impersonate human intelligence in the process of analyzing and solving problem. AI technology is being used in various industries include tourism (Samala et al, 2020). Good example of AI tools used in tourism industry includes, chatbots, google map, google translator, flight radar, recommendation system property management system, self-service kiosks and various other examples.

➢ *Employability among Graduate Students*

Employability consist of three aspects which are knowledge, skills, and attributes that allow people to perform well in any career also to be employed successful, and to integrate freely within job market by realizing one's personal potential (Razack, F. 2017). This means that, employability skills are cross-industry in nature and skilled human resources are required to provide remarkable service to tourists and have a good working behavior with associate staffs. Everyone agreed that, the quality of education, training, and development is the key to build capability (Moyo, B., & Özgit, H. 2022).

III. THEORETICAL REVIEW

The study used Resource-Based View (RBV) theory which analyses the internal resources and capabilities of an organization to creates competitive advantage (Bulchand. G, J. 2022). The theory supports the achievement of a sustainable competitive advantage could be obtained by considering unique combination of resources. Organization could obtain sustainable competitive advantage if they use technically their internal resources like labor power and ICT infrastructure.

Another theory which guided our study is Goal setting theory Latham (1968). The theory concerned with the relationship between goal-setting and task performance. For them, clear goal make employees know what to achieve, influences work motivation *a*nd performance. In relation to the study, this theory will be so useful due to fact that, educational institution including university must set their own goals in tourism field , through this opportunity universities can make strong AI goals that emphasize transformation of traditional tourism to AI related, this will resolve existing challenges and providing awareness to tourism graduates, also help in monitoring by insist related lecturer to work hard in designated AI session during their class and practical in order to archive high level of AI optimization.

(Stroumpoulis et al, 2022). use the RBV theory to examine the impact of information technology on their study on supply chain management. They propose a conceptual framework which combined labor power, IT and other resources of a company to manage specific capabilities which result to maximize competitive advantage. Also their study use RBV theory to access the implementation of AI technology and big data analytics in the tourism industry.

➢ *Conceptual Framework*

As suggested by (Moyo, B., & Özgit, H. 2022). Knowledge and skills, including awareness of AI among university students could be taken as internal resource of any educational institution which provides important data and information to students. Furthermore, in the tourism industry, if university emphasize awareness of AI technology, it is considered as good adaptation to AI environments. As analyzed in Section 2, the applications of AI tools could allow graduate students to obtain good position in tourism market and enable them to setup entrepreneurship activities. In addition, the optimization of these AI tools, through learning and practical session, could help lecturer to strengthening their students to the maximum level of employability.

Therefore, according to the RBV-theory, goal setting theory and the proposed framework by (Stroumpoulis et al, 2022). The awareness of AI technology and application of various AI tools in the tourism industry could enable educational institution to build graduate capability to maximize level of employability which results huge number of graduate to be engaged on entrepreneurship activities, socio-government development and project development.
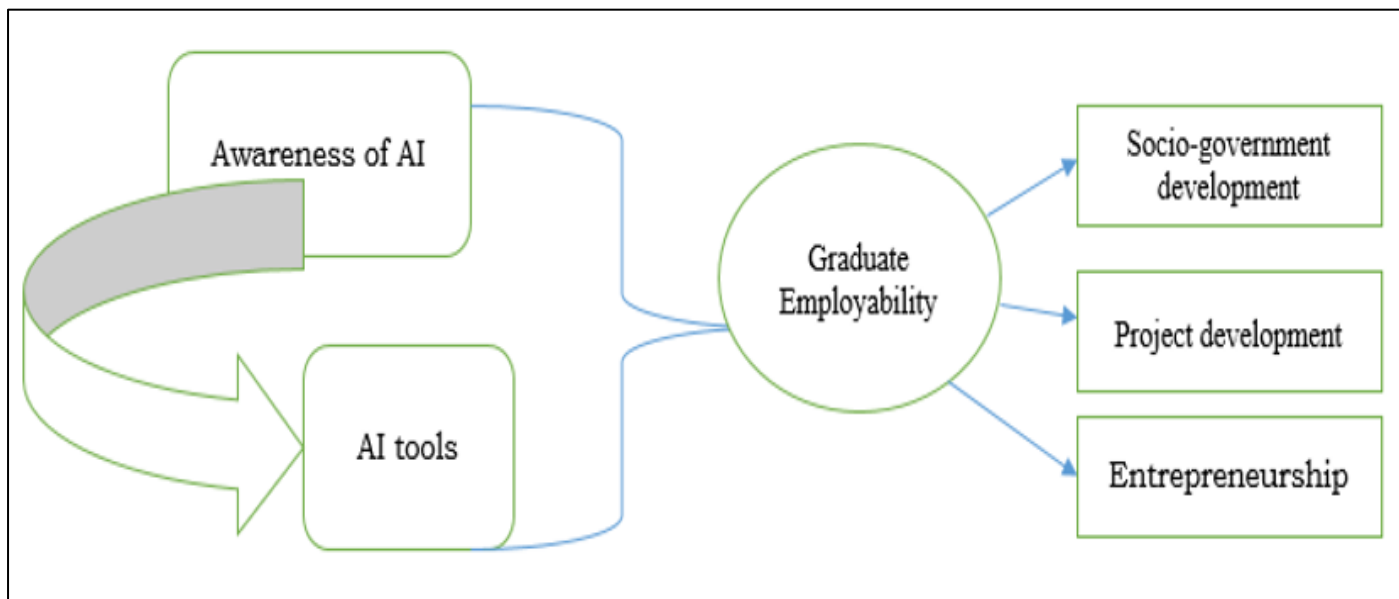
Fig 1 Combining awareness of AI and Application of AI Tools in Tourism Field

IV. METHODOLOGY

The target population of this study were purposeful selected from two offices. one member from Zanzibar Opportunity Institute (ZOI), two members from Zanzibar Tour Guide Association (ZATOGA) and also tourism students at Institute of Tourism SUZA between 6th November 2023 to 10th November, 2023. This study adopted descriptive research design (Moyo, B., & Özgit, H. 2022). since it investigates the integration of AI technology on capacity building among graduate student in tourism era. Both qualitative and quantitative research approaches were used. Qualitative research methodology was used to identify the current application of and challenges of AI among the university student in tourism field through using detailed questionnaires. Furthermore, evaluation regarding the capability in applying AI tools also was done by using qualitative approach such as interviews, and documentary literature review.

The study was used purposeful sampling techniques to obtain 55 respondents as sample size. The individual interview was purposeful scheduled to obtain detailed information from four (3) tourism experts; 1 expert from Zanzibar Opportunity Institute (ZOI) and 2 members from ZATOGA. Interviews was performed by using interview guide. In this study, tourism experts were interviewed and information obtained through this interview was if the university establish special AI training in tourism sector which area of AI in tourism do you think will help you to build your capacity and influence the level of employability

and also Does university curriculum has strategic on improving your carrier through AI technics? The discussions took about 45 minutes to an hour. A respondent got sufficient time to contribute their views on specific discussion points. After interview session finished, data were managed effectively to ensure security and storage. The qualitative data from respondents were collected using interviews and analyzed by using thematic analysis. Qualitative data analysis was guided by six (6) steps as suggested by (Maguire and Delahunt, 2017). Most of the statistical data collected were analyzed quantitatively using SPSS to generate different charts and tables in order to visualize different variables as suggested by (Reed, M. 2018). while some of qualitative data collected through mixed questionnaires and those which collected through interview and documentary review were analyzed using thematic analysis.

V. FINDINGS AND DISCUSSION

➢ *Descriptive Statistical Analysis of students AI training and Attitudes Towards optimization of AI tools and services*

As shown in the table 1, students level of attending AI training is not as good as expected. The data shows that 40.0% of respondents attended training in 2023, while 12.7% of the respondents attended in 2022 and the rest majority 47.3% never attended such training. We can observe that although AI training in educational institution has been popularized, still some of university students having poor attendance.

Table 1 AI Training

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2023	22	40.0	40.0	40.0
	2022	7	12.7	12.7	52.7
	Never	26	47.3	47.3	100.0
	Total	55	100.0	100.0	

Source: Field survey, 2023

This also meaning that, there is necessity for arranging and establishing of special AI training in the student's extra curriculum activities. Furthermore, the study shows that majority of respondents 49 out of 55 use AI technology in their daily activity (56.4%), weekly (36.4%) and monthly (7.3%) as shown in Figure 2.
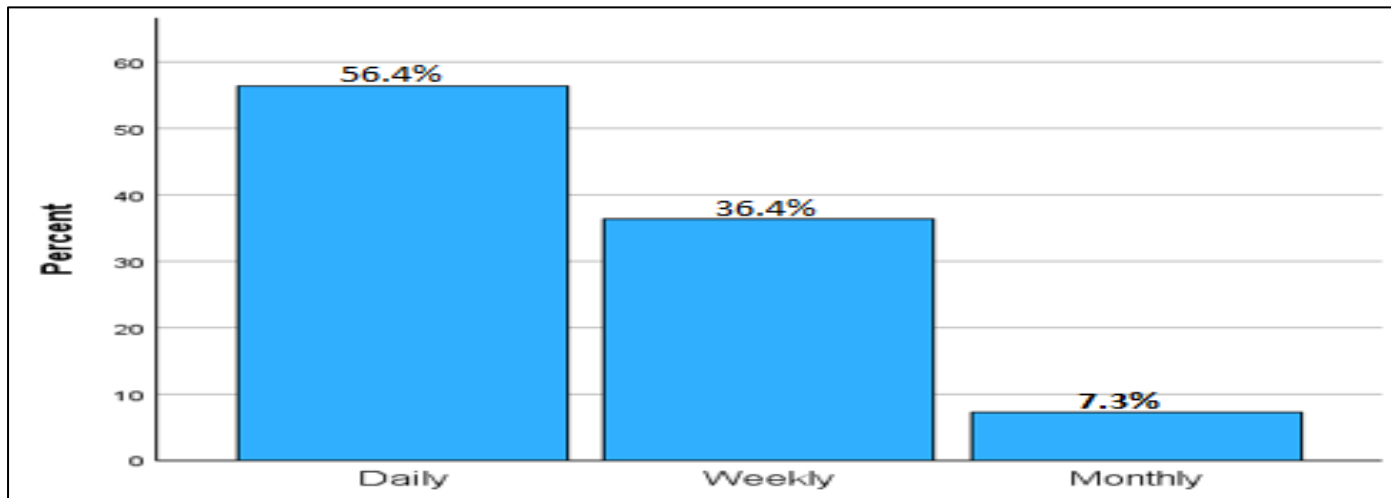

Fig 2 Often to use AI

On other hand, the result revealed 6 respondents out of 55 they do not use AI technology due to some factors. One respondents said the AI is not necessary on her work, 4 respondents said they do not know how to use AI tools and the last one respondents said that he don't have access to AI tools. See table 2.

Table 2 Student who don't use-AI

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not necessary for my work	1	1.8	16.7	16.7
	I do not know how to use it	4	7.3	66.7	83.3
	I do not have access to AI tools	1	1.8	16.7	100.0
	Total	6	10.9	100.0	
Missing	System	49	89.1		
Total	Total	55	100.0		

Source: Field survey, 2023

Among the many AI- services does student use most as observed from figure 3, google translator is most popular use with excellent competence, followed by google map, then online delivery and self-service kiosks. With good competence level of using AI service some students had performed booking flight, e-restaurant, flight radar and property management while they were at filed attachment. GPS truck service is a least chosen by respondents, which also shows from the side that artificial intelligence has not been fully applied to tourism students, which puts forward the future development direction for tourism institutions, and the scope of use and intelligence of AI should be increased.
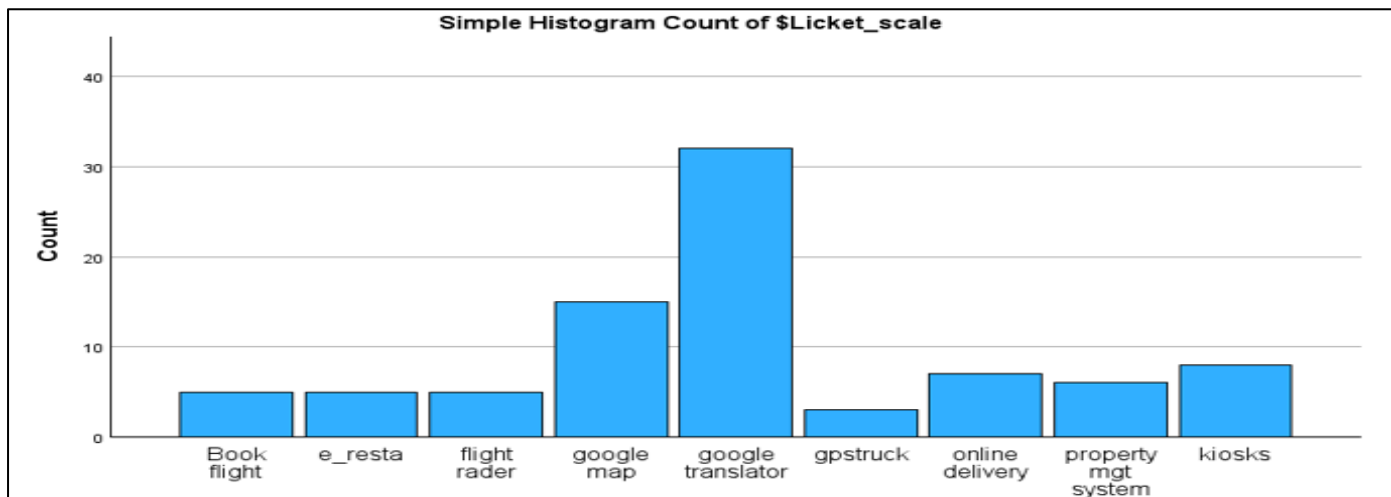

Fig 3 Frequency of Performing Different AI Services

➢ *Student Perception on awareness of AI and Attitude toward AI Challenges and Employability*

As shown in the table 3, the result shows that 60% of respondents they have idea about AI and the rest 40% of respondents do not know about AI. We can have observed that those who have the idea of AI are the one who attend AI training between 2022 and 2023.

Table 3 AI Idea

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	33	60.0	60.0	60.0
	No	22	40.0	40.0	100.0
	Total	55	100.0	100.0	

Source: Field survey, 2023

Furthermore, the study shows that 85.5% of respondents agreed that AI has several challenges and 14.5% are disagreed about this issue, see table 4.

Among the AI challenges which mentioned from the respondents include students have delaying getting job opportunity, students have no enough skill of applying online job, they do not know how to use AI tools in advertise tourism service and product as addressed by Rathore M.K. and Sonawat R. (2015). The article of (Hasebrook, J. Saha, A, 2017) argued that student from certain field are more adopt then other at operative use of online tools on the matter of searching online job.

Table 4 AI Challenge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	47	85.5	85.5	85.5
	No	8	14.5	14.5	100.0
	Total	55	100.0	100.0	

Source: Field survey, 2023

Moreover, table 5 shows higher percentage (81.8%) of respondents have agreed that AI will influence job employability while 18.2% do not agreed with statement, which may be because of being lack of AI knowledge.

Table 5 Influence of AI in Job Employability

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	45	81.8	81.8	81.8
	No	10	18.2	18.2	100.0
	Total	55	100.0	100.0	

Source: Field survey, 2023

➢ *Thematic analysis from our Respondents.*

Apart from qualitative analysis, the study then used thematic analysis to analyze qualitative data from interview. Two themes are revealed from interviewers of this study.

• *Integration of Technology (AI) in the Studies.*

The themes deduced from the open ended questionnaire is that AI arose the student awareness on the use of technology in their daily life during studies and after graduate. The use of technology in class provide a great chance for student to utilize different types of technology to enhance their knowledge (Drexel University, 2023: Rathore M.K. and Sonawat R. (2015). Skills of applying AI in tourism will shape them to be a good personnel in their organization. (Abdi K, S and Nasser A, S (2023) suggested that staff played a great role in any organization but there should be an increase level of training to expand their capability of doing work in daily duties.

• *Professional Development Training.*

Another theme is based on extra curriculum of students, there should be training in the area of AI and Tourism. It is an essential for students and staff engagement to enhance skills in their working environment includes new AI applications for working in Tourism as well as Hospitality. Therefore, Students and instructors are ought to have special training out of their daily class to enable them to familiarized with their working environment easily (Al-Hattami, Muammar and Elmahdi, 2023: Roschelle at al, 2009). It is essential for students and teacher to have a huge skill that enable them to stay up date in their works that enhance their professional development.

VI. CONCLUSIONS

The aim of this study was to access the role of AI in capacity building among university graduate in tourism industry. An additional aim was to contribute the combination of AI awareness and skill of using AI tool and service could lead to improved employability among tourism graduates. To better clarify the contribution of these technologies on the tourism market, the paper come up with a framework based on the RBV theoretical approach and Goal setting theory. The analysis revealed that the use of these technologies enables tourism institute such as university to maximize their practical performance, establish better adaptation mechanism

related to tourism and AI with their students, achieve potentially gain competitive advantage. So, this study provides the contribution of graduate employability with a conceptual framework to evaluate the challenge facing graduate student who do not have awareness about AI. However, due to the fact that AI is a new technology, the level of adoption in the tourism institute is very low. Therefore, much room for further research is available, which could be useful by various stakeholder to ensure development of tourism industry is growing day after day.

REFERENCES

[1]. Abdi K, S and Nasser, A S (2023) *The impact of government initiatives in addressing challenges facing youth graduates in Zanzibar: A case study of Zanzibar Youth Council.* SUMAIT University Journal (SUJ) ISSN (e- ISSN2953-2698) Issue No.12 (June).

[2]. Al-Hattami A, Muammar O M and Elmahdi I (2023) *The need for professional training programs to improve faculty members teaching skills.*

[3]. Bulchand-Gidumal, J. (2022). *Impact of artificial intelligence in travel, tourism, and hospitality*. In *Handbook of e-Tourism* (pp. 1943-1962). Springer.

[4]. Conway, K. (2011), *"How prepared are students for postgraduate study? A comparison of the information literacy skills of commencing undergraduate and postgraduate information studies students at Curtin University"*, Australian Academic & Research Libraries, Vol. 42 No. 2, pp. 121-135.

[5]. Drexel University (2023) *How to use Technology in the Classroom Benefits and Effects.* https://drexel.edu/soe/resources/student-teaching/advice/ accessed on 07/11/2023.

[6]. Gao, M. (2023*). Research on the Application of Artificial Intelligence in Night Tourism*. 2023 3rd International Conference on Public Management and Intelligent Society (PMIS 2023),

[7]. Hasebrook, J. Saha, A, (2017) Web 2.0 Job hunting: *How students look for job*, ISNM, International School of new media University of Luebek Germany.

[8]. Kiger, M. E., & Varpio, L. (2020*). Thematic analysis of qualitative data: AMEE Guide No. 131. Medical teacher, 42(8), 846-854.*

[9]. Maguire, M. & Delahunt, B. (2017). *Doing Thematic Analysis: A practical, step-by-step Guide for Learning and Teaching Scholars.* AISHEE-J, 3351.

[10]. Moyo, B., & Özgit, H. (2022). *Tourism graduate students' employability skills: Results and implications of a Zimbabwean study. Journal of Psychology in Africa*, *32*(3), 268-274.

[11]. Oke, Elizabeth Abiola, (2023) *Ict Usage and Tourism Destination Patronage in Nigeria*.ISSN: 2993-8732.

[12]. Rathore M.K. and Sonawat R. (2015). *Integration of technology in education and its impact on learning of students.* International Journal of Applied Home Science, 2(7&8): 235-246.

[13]. Rempel, H.G. (2010), *"A longitudinal assessment of graduate student research behavior and the impact of attending a library literature review workshop"*, College & Research Libraries, Vol. 71 No. 6, pp. 532-547.

[14]. Reed, M. (2018). *The Classification of Artificial Intelligence as" Social Actors".*

[15]. Razack, F. (2017). *Employability attributes for tourism management graduates: The perspective of tour operators in Gauteng.* University of Johannesburg (South Africa).

[16]. Stroumpoulis, A., Kopanaki, E., & Varelas, S. (2022). *Role of artificial intelligence and big data analytics in smart tourism: a resource-based view approach. WIT Transactions on Ecology and the Environment*, *256*(2022), 99-108.

[17]. Roschelle J at al (2009) *Integration of Technology, Curriculum, and Professional Development, for Advancing Middle School Mathematics: Three Large-Scale Studies.* Journal of American Educational Research.

[18]. Samala, N., Katkam, B. S., Bellamkonda, R. S., & Rodriguez, R. V. (2020). *Impact of AI and robotics in the tourism sector: a critical insight. Journal of tourism futures*, *8*(1), 73-87.

[19]. Shabnaz, S., & Shajahan, B. (2022). Employability Skill required for Human Resource Graduates: *A Literature Review. AIUB Journal of Business and Economics, 19(2), 146-154.*

[20]. Wakelin-Theron, N., Ukpere, W. I., & Spowart, J. (2019). *Determining tourism graduate employability, knowledge, skills, and competencies in a VUCA world: Constructing a tourism employability model. African Journal of Hospitality, Tourism and Leisure*, *8*(3), 1-18.